

# TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE

BOISE, IDAHO

SOIL CONSERVATION SERVICE

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PRESCRIBED BURNING tips and guidelines for completing Form ID ECS-5, Prescribed Burning Plan, and Form ID ECS-6, Post Burn Evaluation. The following information provides tips and guidelines for prescribed burning on rangeland, pastureland, and associated wildlife land. This information would not be generally considered useful for planning prescribed burns on forestland.

Prescribed burning can be an effective tool in accomplishing one or more of the following objectives:

1. To reduce brush canopy cover, promote increased herbaceous forage production, and/or prepare site for seeding.
2. To control juniper seedlings and rate of invasion and reduce size and density of mature stands.
3. To control undesirable annual grasses, such as annual bromes and medusa-head wildrye.
4. To improve vegetative quality and quantity by reducing mature vegetative cover, stimulate seedling growth, and to aid in distribution of grazing and browsing animals.
5. To improve wildlife habitat.
6. To remove a naturally occurring wildfire hazard.

## Planning and Management Considerations

1. Follow Prescribed Burning Practice Number 338 for specifications.
2. When the objective is to improve wildlife habitat, not by reducing the amount of brush but rather by making it more available, prescribed burning can be used on root-sprouting species to burn the brush back to a height below the normal upper browsing limits.

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1/ Technical Note was prepared by Robert J. Baum, State Range Conservationist, SCS, Boise, Idaho.

3. Prescribed burning should generally not be used on root-sprouting species such as rabbitbrush, snowberry, etc., unless additional followup treatment is planned through use of chemicals, etc.
4. Avoid implementing burning immediately after heavy seed crops of big sagebrushes. Mountain big sagebrush, especially, reinvades with numerous seedlings, even under normal seed crops.
5. Pay particular attention to fuels -- fuel loading, size and shape, horizontal continuity, etc. What exists will generally depend on the soils, climate, and geographic features of the site. The above fuel characteristics can be either beneficial or detrimental in the prescribed burn implementation. Most rangeland vegetation in the intermountain region is vertically oriented; fine fuels -- except in annual plant communities -- are noncontinuous; and fuel size is 0-1" diameter and within the 1 - 10 hour timelag (timelag is an expression of the rate at which a given fuel approaches its equilibrium moisture content).
6. The burned area must be incorporated into a system of management allowing for desired response of forage species.
7. Use natural areas such as roads, rock outcrops, water areas, etc. as firelines where feasible. Where mechanical equipment is used in fireline construction, strips should be bladed, dozed, disced, etc. down to mineral soil. Check all firelines, including natural areas, for fuel bridging.
8. Do not burn when a weather front is expected during the burn. No more fire should be burning at one time than can be controlled by equipment and crew.
9. DO NOT BURN UNTIL ALL PRECAUTIONS HAVE BEEN TAKEN AND ALL PERSONNEL INVOLVED ARE INFORMED OF THE BURN PLAN AND THEIR RESPONSIBILITIES DURING THE BURN. ALWAYS PLACE SAFETY FIRST.

Consider the above items as useful tips in planning, implementing, and management during and following burns. This is not to be considered as an all-inclusive list.

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The following are informational guidelines to be used in completion of Form ID ECS-5, Prescribed Burn Plan. Identification of the item will correspond to the major breakdown on the form, i.e. A, B, C, etc.

Form ID ECS-5, PRESCRIBED BURN PLAN

**Heading** - Landowner/Operator, Date Prepared, etc. should be fully completed.

- A. **Map of area to be burned:** General map including landownership, land use, etc.
- B. **Description of area to be burned:** Identify the present plant cover, average slope, aspect, etc.
- C. **Objectives of the burn:** Be specific, i.e. kill 90 percent of the Basin big sagebrush, kill 90 percent of the Basin big sagebrush on the upper half of the slope, remove 90 percent of the standing shrub biomass, increase grass production by 50 percent at end of first full growing season following burn, etc.  
  
REMEMBER: Objectives should be (1) clear and concise, (2) be reasonably attainable, (3) have an acceptable time frame for determining results, and (4) contain a measurable factor that determines the degree of success.
- D. **Preburn inventories and preburn monitoring:** Site and condition inventory, areas of erosive soils, wildlife save areas, buildings, wells, troughs, etc., establishment of preburn monitoring stations, etc.
- E. **Burn prescription:** Use Prescribed Burning - 338 specification and design within specification to best meet objective of the burn.
- F. **Preparation of the area for burning:** Planning for a prescribed burn generally requires preplanning which covers a complete growing season, especially where site condition produces minimum amounts of fine fuels. Generally 600 - 1,000 lbs/acre of fine fuels are necessary to carry a prescribed fire under most conditions; an exception is mature juniper stands.

Describe potential hazard areas such as areas of high-volatile fuels which are explosive and create spotting problems. These include those containing extractives such as waxes and oils (chapparral, conifers, dead aspen, dead juniper).

Special precaution areas might be special wildlife habitat areas, campgrounds, desirable wooded areas, etc.; all of which may need special protection.

- G. **Ignition techniques and methods for fireline and prescribed burn:** Consider firing techniques such as backfire, head fire, strip head fire, etc., and firing methods such as flame thrower, fences, hand-held drip torch, etc.

- H. **Tools/Equipment needed:** Consider equipment such as firing method tools, two-way radios, first-aid kit, drinking water, flags for highway men, etc. Also you must consider tools for fire suppression such as pumper trucks, tractor/maintainer (grader), backpack sprayers, fusees, rakes, shovels, etc.
- I. **Manpower needs:** Consider all manpower needs for firing, equipment operation, fire suppression, vehicle traffic, etc.
- J. **Prescribed burn organization:** List those responsible for selected positions. Backups are generally necessary and must be included in all planning and discussions concerning the prescribed burn.
- K. **Patrol and mop-up plan:** Consider and name people needed, equipment, standard for mop-up, contact person in case of emergency or assistance needs, etc. Maintain close observation of the burned area until the fire is completely extinguished.
- L. **Preburn checklist:** This will generally be completed by the burn boss or someone designated as a burn manager and familiar with the entire operation. This must be completed prior to firing and all items listed satisfied.

**Page 6 - Prescribed Burn Plan Map:** This must be completed, reviewed with, and understood by all participants associated with the prescribed burn. Signatures and dates must be affixed to this page.

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This section applies to Form ID ECS-6, Post Burn Evaluation. This form is divided into two sections for evaluation. One section covers a post burn evaluation near immediately following the burn and another 60 - 90 days following the burn. Both sections are very important to the prescribed burning process and must be completed as part of the followup process.

The post burn evaluation is the process used to examine and appraise the results of a prescribed fire through qualitative and quantitative monitoring data. Monitoring and evaluation provide the following: (1) a measure of how well resource objectives have been met, (2) a basis for improving economic efficiency, (3) data that allows replication of desired results, (4) validation of fire behavior outputs, (5) opportunities to refine the prescription based on experience, and (6) a basis for assessing long-term effects of fire.

Even though a specific item has not been identified for "safety" I would urge you to include this somewhere in a narrative portion of the post burn evaluation report.

The following are informational guidelines to be used when completing the items listed on the form. Identification of the item will correspond to the major breakdown on the form, i.e. A, B, C, etc.

Form ID ECS-6, POST BURN EVALUATION

**Heading** - Landowner, etc. should be fully completed

- A. **Weather forecast:** This would be that predicted from an established weather station. Preferably in close proximity to prescribed burn area as possible.
- B. **Actual weather at burn:** This is data recorded by weather monitoring designer at time of burn.
- C. **Burning method:** Fully describe any deviation from the prescribed burn plan, either as a result of changing conditions or from uncontrolled activities.
- D. **Fire behavior:** Describe any situation unusual to that expected.
- E. **Did fire stay within prescription:** Answer affirmative or negative. Explain any area which received a negative answer.
- F. **Objectives accomplishment:** This refers to sections of "C" on Form ID ECS-5, Prescribed Burn Plan.
- G. **Post burn management plan:** It is expected that grazing management, etc., would be described in the conservation plan as part of an overall Resource Management System (RMS). List here any changes brought about by the prescribed burn, i.e. needed fencing, water bars, more burning, necessary wildlife manipulations, etc.
- H. **Remarks:** Any situation not covered by identified items and thought useful to reviewers and future burn plan developments or initial post burn evaluation. Signature(s) and date must be affixed in spaces provided for such.

Followup evaluation to prescribed burn (60 - 90 days after burn).

- A. **Objective accomplishments:** This would include any items not included under F above or further explanation of a topic not fully covered under F due to real time, i.e. plant growth, survival, etc.
- B. **Changes needed in post burn management plan:** This refers to G above and may be necessary for situations developed since initial post burn evaluation was completed.

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- C. **Remarks:** Any situation not covered by identified items and thought useful to reviewers and future burn plan developments or post burn evaluation. Signature(s) and date must be affixed in spaces provided for such.